

# Honeywell's Rsp. To SS's First Set of Rogs.

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE

HONEYWELL INTERNATIONAL INC.  
and HONEYWELL INTELLECTUAL  
PROPERTIES INC.

Plaintiffs,

v.

HAMILTON SUNDSTRAND CORP.,

Defendant.

C.A. No. 99-309-GMS

**HONEYWELL'S RESPONSES TO  
SUNDSTRAND'S FIRST SET OF INTERROGATORIES**

Plaintiffs Honeywell International Inc. and Honeywell Intellectual Properties Inc. (collectively, "Honeywell"), through their attorneys, hereby respond to defendant Hamilton Sundstrand Corporation's ("Sundstrand's") Interrogatories to plaintiffs as follows:

**GENERAL OBJECTIONS**

1. Honeywell objects to the Interrogatories, and the definitions of terms and instructions therein, on the grounds and to the extent that they purport to impose any obligations on Honeywell beyond those imposed by the Federal Rules of Civil Procedure and Local Rules of the United States District Court for the District of Delaware.

2. Honeywell objects to each and every paragraph of the Interrogatories that calls for information that is privileged or otherwise exempt from discovery in accordance with applicable law, including, without limitation, documents and information within the scope of the attorney-client privilege and work product doctrine. Similarly, Honeywell objects to the Interrogatories on the grounds and to the extent that they call for disclosure of information prepared in anticipation of litigation and/or trial preparation material without the showing

**INTERROGATORY NO. 6:** Identify and describe any and all changes or developments in technology (including the date(s) such change or development occurred and became known in the art), occurring after the Relevant Amendment Dates for the '893 Patent and the '194 Patent, that would explain why the technology used in the alleged equivalent was unforeseeable at the time of the Relevant Amendment Dates.

**RESPONSE TO INTERROGATORY NO. 6:** Honeywell incorporates its general objections. Honeywell also objects to this interrogatory as premature to the extent it calls for the disclosure of expert testimony. Honeywell further objects to this interrogatory as misleading and based on an erroneous premise to the extent it suggests that the foreseeability test could only be met based on a change or development in technology. Subject to and without waiving those objections, Honeywell responds as follows: As of 1983, it was not known in the art to measure static pressure in the diffuser as part of a delta P/P input to a surge control system of an APU. This is significant because the "inverted V/double solution" flow curve only arises, on certain occasions and in certain configurations, when the static pressure sensor is placed in the diffuser, as opposed to the compressor output, as was typical in the art at the time of the Relevant Amendment Dates. According to Sundstrand, it is the "inverted V/double solution" that led to Sundstrand's unforeseeable use of inlet guide vane position in the surge control system of the APS 3200. This change in technology took place in the late 1980s. Honeywell further incorporates by reference its Response to Interrogatory No. 2.

**INTERROGATORY NO. 7:** Identify all Honeywell APUs encompassed in the statement, in paragraph 10 of the Declaration of Jim Crocker Clark in Support of Honeywell's Responses to Sundstrand's Summary Judgment Motions, that "several of Honeywell's APUs – including the 331-350 – have the same 'inverted-V/double solution.'"

**RESPONSE TO INTERROGATORY NO. 7:** Honeywell incorporates its general objections. Subject to and without waiving its objections, Honeywell responds as follows: the Honeywell APUs that may exhibit the "inverted-V/double solution" flow curve are

the 331-350, 331-400, 331-500, 331-600, 131-9[A], 131-9[B], 131-9[D], 131-9[J] and 131-9[JC]. Honeywell further responds that all of these APUs were developed after 1985.

MORRIS, NICHOLS, ARSHT & TUNNELL



Thomas C. Grimm (#1098)

Leslie A. Polizoti (#4299)

1201 N. Market Street

P.O. Box 1347

Wilmington, DE 19899-1347

(302) 658-9200

tgrimm@mnat.com

lpolizoti@mnat.com

*Attorneys for Plaintiffs*

OF COUNSEL:

Jonathan F. Putnam

Lee Ann Stevenson

Vickie Reznik

Michael Strapp

KIRKLAND & ELLIS LLP

Citigroup Center

153 East 53<sup>rd</sup> Street

New York, NY 10022-4611

(212) 446-4800

October 3, 2005

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# Sundstrand's Appeal Brief

Ref: 005-1082

Alleged Senior Counsel Appeals  
*for the*  
 Federal Circuit

JOHN WELLS INTERNATIONAL LTD. (formerly known as Wilson's) and International Trade  
and Transport Co. Ltd. (formerly known as Wilson's) are the same company.

CONFIDENTIAL - PENDING

UNITED STATES DISTRICT COURT, DISTRICT OF MARYLAND  
In re: THE ESTATE OF JAMES EARL RAY, JR., Defendant

[illegible]

LEGALLY ASSIGNED UNITED STATES DISTRICT COURT FOR THE  
DISTRICT OF DELAWARE IN RE  
PUBLIC SERVICE COMPANY OF NEW JERSEY  
PUBLIC SERVICE OF NEW JERSEY

## BRIEF FOR DEFENDANT AND CROSS APPELLANT

## Practical Example

## EXERCISE 11: THE BOTTLE NECK

## Life's little pleasures

# THE FUTURE

POSTER 100

SALE OF THE YEAR

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

01234567891011121314151617181920212223242526272829303132333435363738394041424344454647484950515253545556575859606162636465666768697071727374757677787980818283848586878889909192939495969798991001011021031041051061071081091101111121131141151161171181191201211221231241251261271281291301311321331341351361371381391401411421431441451461471481491501511521531541551561571581591601611621631641651661671681691701711721731741751761771781791801811821831841851861871881891901911921931941951961971981992002012022032042052062072082092102112122132142152162172182192202212222232242252262272282292302312322332342352362372382392402412422432442452462472482492502512522532542552562572582592602612622632642652662672682692702712722732742752762772782792802812822832842852862872882892902912922932942952962972982993003013023033043053063073083093103113123133143153163173183193203213223233243253263273283293303313323333343353363373383393403413423433443453463473483493503513523533543553563573583593603613623633643653663673683693703713723733743753763773783793803813823833843853863873883893903913923933943953963973983994004014024034044054064074084094104114124134144154164174184194204214224234244254264274284294304314324334344354364374384394404414424434444454464474484494504514524534544554564574584594604614624634644654664674684694704714724734744754764774784794804814824834844854864874884894904914924934944954964974984995005015025035045055065075085095105115125135145155165175185195205215225235245255265275285295305315325335345355365375385395405415425435445455465475485495505515525535545555565575585595605615625635645655665675685695705715725735745755765775785795805815825835845855865875885895905915925935945955965975985996006016026036046056066076086096106116126136146156166176186196206216226236246256266276286296306316326336346356366376386396406416426436446456466476486496506516526536546556566576586596606616626636646656666676686696706716726736746756766776786796806816826836846856866876886896906916926936946956966976986997007017027037047057067077087097107117127137147157167177187197207217227237247257267277287297307317327337347357367377387397407417427437447457467477487497507517527537547557567577587597607617627637647657667677687697707717727737747757767777787797807817827837847857867877887897907917927937947957967977987998008018028038048058068078088098108118128138148158168178188198208218228238248258268278288298308318328338348358368378388398408418428438448458468478488498508518528538548558568578588598608618628638648658668678688698708718728738748758768778788798808818828838848858868878888898908918928938948958968978988999009019029039049059069079089099109119129139149159169179189199209219229239249259269279289299309319329339349359369379389399409419429439449459469479489499509519529539549559569579589599609619629639649659669679689699709719729739749759769779789799809819829839849859869879889899909919929939949959969979989991000100110021003100410051006100710081009101010111012101310141015101610171018101910201021102210231024102510261027102810291030103110321033103410351036103710381039104010411042104310441045104610471048104910501051105210531054105510561057105810591060106110621063106410651066106710681069107010711072107310741075107610771078107910801081108210831084108510861087108810891090109110921093109410951096109710981099110011011102110311041105110611071108110911101111111211131114111511161117111811191120112111221123112411251126112711281129113011311132113311341135113611371138113911401141114211431144114511461147114811491150115111521153115411551156115711581159116011611162116311641165116611671168116911701171117211731174117511761177117811791180118111821183118411851186118711881189119011911192119311941195119611971198119912001201120212031204120512061207120812091210121112121213121412151216121712181219122012211222122312241225122612271228122912301231123212331234123512361237123812391240124112421243124412451246124712481249125012511252125312541255125612571258125912601261126212631264126512661267126812691270127112721273127412751276127712781279128012811282128312841285128612871288128912901291129212931294129512961297129812991300

## REFERENCES

20190101

[illegible]

*some* way. But the 3200 relies on the input of IGV position for a completely different purpose: as information the logic considers in determining whether a condition peculiar to the 3200 has occurred, in which it should simply keep the surge valve shut. When that condition exists, the Sundstrand logic actually **blocks out** the active control system that normally operates the surge valve to prevent surge. Hence, there is nothing equivalent about the use of the IGV position input in the two competing control logics.

At trial, Honeywell's expert attempted in garbled testimony to bridge this gulf with a theory of equivalence – that *any* use of IGV position as an input infringes – which necessarily vitiated the patents' IGV Limitation. Then, in summation Honeywell effectively abandoned its expert's incoherent testimony and offered a different theory – that the *physical effect* of IGVs on airflow infringes, even if the surge control system has *no* IGV position input – which was not supported by *any* witness and which strayed even further from the patent claims.

Both of Honeywell's arguments fail the two key tests courts must apply to prevent overreaching patentees from abusing the doctrine of equivalents:

*First*, Honeywell's equivalence theory flatly ignored the actual "role played by [the IGV Limitation] in the context of the specific patent claim" and thereby vitiated that limitation, which the Supreme Court has emphasized must be rejected as a matter of law. *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*,



a much different role: to deal with the unreliability of the 3200's unusual flow parameter in extreme high flow circumstances by detecting that condition and responding to it by blocking the integral-proportional control signal from operating the surge valve. This is the only use of the IGV position input in the 3200's control logic. A16393.

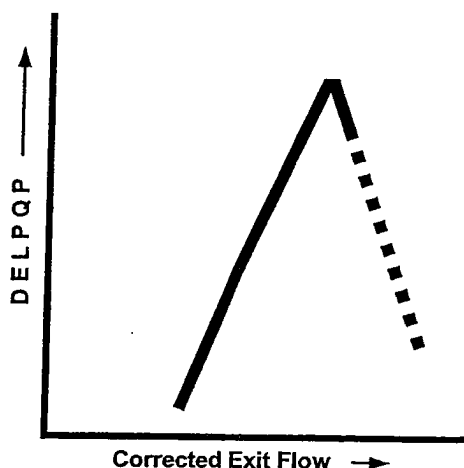
The following explains the operation of this feature of the 3200's control logic.

**a. function – the double solution problem**

The 3200 employs an unusual parameter, called DELPQP, to measure both the flow and compression of air through the compressor. As airflow increases, the value of DELPQP increases. But DELPQP has the odd characteristic that when airflow reaches an extremely high level, DELPQP's value peaks and then actually starts to *decrease* even as airflow *increases*. A16362-63, A16393. It is as if when a car's speed reaches 100 mph, the speedometer starts to show lower values even as speed increases. A16363.



A plot of DELPQP's value against airflow forms an inverted "V", like this:



A19017.

The problem caused by this behavior is that with extremely high airflow, DELPQP might register a low value – because it has gone down the right side of the peak in the curve shown above. The control system then would think it needs to open the surge valve to exhaust air and increase airflow. But exhausting air is unnecessary, because airflow in fact is extremely high and so there is no risk of surge. So, Sundstrand created a test in the 3200's control system, called the high flow logic, to tell when it has reached such extremely high airflows that this problem might occur. A16363-64, A16393, A16493-94.

Honeywell's own expert admitted that the high flow logic addresses this unusual behavior of the 3200's DELPQP parameter, which is "*special to the APS 3200*" and "*generate[s] this funny looking curve*" and that "because of this

*odd curve* . . . you have this *odd control* with [an] *odd response*.” A16219

(emphasis supplied).

**b. way – determining the peak in the curve**

The high flow logic includes two tests for determining when DELPQP is approaching the peak in the double-solution curve. The 3200’s *only* use of IGV position is as one of four inputs that are used in one of these tests. A18963, A16393-94, A16493-94.

**c. result – blocking the surge control signal**

When the high flow logic determines that the system is in high flow, it *disconnects* the integral-proportional control signal to keep it from unnecessarily opening the surge valve. This does not affect the magnitude of the integral-proportional control signal, which continues to be generated, but simply *blocks* it from operating the surge valve. A fixed signal is supplied instead to keep the valve closed. A18964, A16393-96, A16494.

In sum, the role of the high flow logic is to deal with the unreliability of the DELPQP parameter in extreme high flow circumstances by blocking the normal control signals. This has nothing to do with the IGV Limitation’s role of adjusting the minimum airflow to be maintained to prevent surge. Conversely, the IGV Limitation has nothing to do with an unusual airflow parameter that in extreme high flow is unreliable. A16393, A16395.

Honeywell's  
Second Response to  
Sundstrand's First  
Set of Interrog.

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

HONEYWELL, INC., and	)	
HONEYWELL INTELLECTUAL PROPERTIES, INC.	)	
	)	Case No. 99-309 (GMS)
Plaintiffs,	)	
	)	
v.	)	
	)	
HAMILTON SUNDSTRAND CORPORATION,	)	
Defendant.	)	

**HONEYWELL'S SECOND SUPPLEMENTAL RESPONSES TO  
SUNDSTRAND'S FIRST SET OF INTERROGATORIES (NOS. 2, 5, 6, 8, 9, 12)**

Plaintiffs ("Honeywell") supplement their responses to Defendant Hamilton Sundstrand's ("Sundstrand") First Set of Interrogatories (Nos. 2, 5, 6, 9) as follows:

**General Objections**

1. Honeywell objects to the definitions and instructions served with Sundstrand's first set of interrogatories to the extent that they exceed the scope of discovery authorized by the Federal Rules of Civil Procedure and any applicable local rule.
2. Honeywell objects to these interrogatories to the extent that they call for information protected from discovery by the attorney-client privilege, the work product doctrine, or by any other privilege or doctrine.
3. Honeywell's response or partial response to any interrogatory is not a waiver of its objections or its right to object to any additional, supplemental, or further interrogatory, or any part thereof.
4. Honeywell objects to the definition of "AlliedSignal" in Sundstrand's first set of interrogatories as overbroad.

**INTERROGATORY NO. 5**

Identify, by name, description and model number, each product manufactured, offered for sale or sold by AlliedSignal at any time which embodies any of the asserted claims, and for each such product, provide a detailed claim analysis applying each asserted claim embodied in such product.

**ANSWER:**

Honeywell objects to this interrogatory as overbroad, unduly burdensome, and not reasonably calculated to lead to the discovery of admissible evidence. Honeywell's APUs have not been accused of infringement, and neither the construction of Honeywell's patents nor their infringement by Sundstrand depends upon whether Honeywell's products fall within Honeywell's patents. Moreover, Honeywell has not undertaken an investigation of each model of APU that it has manufactured in the past to determine whether it is covered by any of the patents-in-suit. Subject to and without waiving its specific and General Objections, Honeywell responds as follows.

At least some versions of the following APU products use or have used a timed acceleration fuel control system as well as a surge bleed control system in which the difference between measured and predicted values of a parameter  $\Delta P$  over  $P$  is used to generate proportional and integral control signals: 331-200, 331-250, 331-350, 36-280, 36-300, 131-9[A], 131-9[B], and 131-9[D]. At this time Honeywell believes that the current version of each of these products embodies at least one claim of each of the patents-in-suit.